



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,223	02/27/2004	Kaoru Usui	MM4704	7958
1109	7590	05/19/2006	EXAMINER	
ANDERSON, KILL & OLICK, P.C. 1251 AVENUE OF THE AMERICAS NEW YORK,, NY 10020-1182			SMITH, TYRONE W	
			ART UNIT	PAPER NUMBER

2837

DATE MAILED: 05/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/789,223

Applicant(s)

USUI ET AL.

Examiner

Tyrone W. Smith

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 is/are allowed.
- 6) ☒ Claim(s) 9-11, 14 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 12, 13, 15 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 9, 10, 11, 14, 17-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Kanayama (4477751) in view of Flock (6975083).

Regarding Claims 9 and 17. Kanayama discloses a motor brake device, which includes electric motor (Figure 4 item M) that is connected between the between the first (Figure 4 items 10, 30) and second (Figure 4 items 20, 40) transistor, which discloses turning OFF the first transistor and turning ON the second transistor in accordance with a brake operation instruction signal from the control circuit (Figure 4 items 32) and forcing the first transistor to be turned OFF in accordance with the brake operation instruction signal. Further, Kanayama discloses control circuits (Figure 1 item 32) with braking control circuits (Figure 1 items 22, 24, 28 and 30) in which one of the control circuit forces the first transistor to be turned OFF in accordance with the operation instruction signal independently from the other control circuit (column 3 lines 58-68 and column 4 lines 22-61). Further, the braking control circuits of Figure 4 items 22 and 30 can be the first brake control circuit and Figure 4 items 24 and 28 can be considered the second brake control circuit in the invention. However, Kanayama does not specifically disclose the first and second braking circuit operating independently.

Flock discloses control for a half bridge, which includes two control modules (Figure 1 items 32A and 32B) wherein a first braking module controls the first transistor (Figure 1 item 16A) and a second transistor (Figure 1 item 20A) and a second braking module controls the first transistor (Figure 1 item 16B) and a second transistor (Figure 1 item 20B). Refer to column 4 lines 63-67, column 5 lines 1-52, and column 10 lines 22-39. Note that the braking control modules of Flock can be manipulated to control the turning on or off of the transistor depending on the programming of the processor (Figure 1 item 34).

It would have been obvious to one of ordinary in the art at the time of invention to use Kanayama's a motor brake device and Flock's control for a half bridge. The advantage of combining the two would provide electronic braking modules for both half-bridge circuits controlling the motor thereby more flexibility in slowing down or braking the system.

Regarding Claim 10. Kanayama discloses the first transistor (NPN) controls supplying of a drive current to the motor, and the second transistor (NPN) controls drawing of the drive current from the motor (Figure 4).

It would have been obvious to one of ordinary in the art at the time of invention to use Kanayama's a motor brake device and Flock's control for a half bridge. The advantage of combining the two would provide electronic braking modules for both half-bridge circuits controlling the motor thereby more flexibility in slowing down or braking the system.

Regarding Claims 11, 14 and 19. Kanayama discloses first (Figure 4 items 10, 30) and second (Figure 4 items 20, 40) transistor are each formed by an NPN transistor and the step of forcing the first transistor to be turned OFF is performed by lowering a base potential of the first transistor (column 3 lines 26-68 and column 4 lines 1-61).

It would have been obvious to one of ordinary in the art at the time of invention to use Kanayama's a motor brake device and Flock's control for a half bridge. The advantage of

combining the two would provide electronic braking modules for both half-bridge circuits controlling the motor thereby more flexibility in slowing down or braking the system.

Regarding Claims 18. Kanayama discloses the first transistor (NPN) controls supplying of a drive current to the motor, and the second transistor (NPN) controls drawing of the drive current from the motor (Figure 4).

It would have been obvious to one of ordinary in the art at the time of invention to use Kanayama's a motor brake device and Flock's control for a half bridge. The advantage of combining the two would provide electronic braking modules for both half-bridge circuits controlling the motor thereby more flexibility in slowing down or braking the system.

3. Claims 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Kanayama (4477751) in view of Flock (6975083) as applied to claims 9, 10, 11, 14, 17-19 above, and further in view of Van Pelt et al (4581565).

Regarding Claim 20. Kanayama discloses a motor brake device, which includes electric motor (Figure 4 item M) that is connected between the between the first (Figure 4 items 10, 30) and second (Figure 4 items 20, 40) transistor, which discloses turning OFF the first transistor and turning ON the second transistor in accordance with a brake operation instruction signal from the control circuit (Figure 4 items 32) and forcing the first transistor to be turned OFF in accordance with the brake operation instruction signal. Further, Kanayama discloses control circuits (Figure 1 item 32) with braking control circuits (Figure 1 items 22, 24, 28 and 30) in which one of the control circuit forces the first transistor to be turned OFF in accordance with the operation instruction signal independently from the other control circuit (column 3 lines 58-68 and column 4 lines 22-61). Further, the braking control circuits of Figure 4 items 22 and 30 can be the first brake control circuit and Figure 4 items 24 and 28 can be considered the second

brake control circuit in the invention. However, Kanayama does not specifically disclose the first and second braking circuit operating independently.

Flock discloses control for a half bridge, which includes two control modules (Figure 1 items 32A and 32B) wherein a first braking module controls the first transistor (Figure 1 item 16A) and a second transistor (Figure 1 item 20A) and a second braking module controls the first transistor (Figure 1 item 16B) and a second transistor (Figure 1 item 20B). Refer to column 4 lines 63-67, column 5 lines 1-52, and column 10 lines 22-39. Note that the braking control modules of Flock can be manipulated to control the turning on or off of the transistor depending on the programming of the processor (Figure 1 item 34). However, neither Kanayama nor Flock discloses a switching element provided between the connection point between the first and second transistor and switching on the switching element in accordance with a brake operation instruction signal.

Van Pelt discloses an H-bridge power amplifier and method for controlling the same, which includes a switching element (Figure 3 item D3 and D4), provided between the connection point between the first and second transistors (Figure 3 items BQ1-BQ4) and switching on the switching element in accordance with a brake operation instruction signal (column 105 lines 48-67 and column 106 lines 48-67 and column 107 lines 1-18).

It would have been obvious to one of ordinary in the art at the time of invention to use Kanayama's a motor brake device and Flock's control for a half bridge. The advantage of combining the two would provide a system that would drive the motor wherein the ripple current flowing through the motor is minimized, thereby conserving power and reducing heat dissipation.

**Allowable Subject Matter**

4. Claims 12, 13, 15 and 16 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. Claims 1-8 in condition for allowance.

**Response to Arguments**

6. Applicant's arguments with respect to claims 9-20 have been considered but are moot in view of the new ground(s) of rejection.
7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

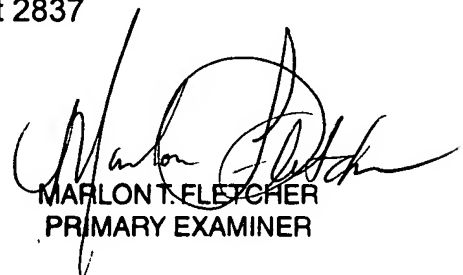
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tyrone W. Smith whose telephone number is 571-272-2075. The examiner can normally be reached on weekdays from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Bradley, can be reached on 571-272-2800 ext. 33. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tyrone Smith  
Patent Examiner

Art Unit 2837



MARLON T. FLETCHER  
PRIMARY EXAMINER